REMARKS

Claims 1-31 are pending in this application. Claims 1-29 have been rejected.

Claims 1, 9, 15 and 27 have been amended for the sole reason of advancing prosecution. The claims have been amended to correct typographical errors, for example, the form of the term "fore wing" has been made consistent throughout the claims. Applicants, by amending any claims, make no admission as to the validity of any rejection made by the Examiner against any of these claims. Applicants reserve the right to reassert the original claim scope of any claim, in a continuing application. The subject matter of newly presented claims 30 and 31 is supported throughout the specification, claims and figures as originally filed, at least by original claims 1 and 15, and Figs. 1C, 9 and 10C.

Support for the claims as amended appears throughout the specification, claims and figures as originally filed. It is respectfully submitted that the amendments do not introduce any new matter within the meaning of 35 U.S.C. §132.

In view of the following, further and favorable consideration is respectfully requested.

I. At page 2 of the Official Action, claims 1 and 10 have been rejected under 35 USC § 112, second paragraph, as being indefinite.

The Examiner has rejected claims 1 and 10 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, asserting that "Claim 1 recites the limitation of 'said arrangement being free of additional wings or tail arrangement'. However, elements 18, 19, and or 20 as shown in Figs. 1A-1D appear to be additional wings or tail

arrangements. It is unclear what structure is being excluded from the aircraft arrangement." With regard to claim 10, the Examiner asserted that "[i]t is unclear what is meant by the phrase 'positive pitching moment at zero lift'. At zero lift there would be no pitching moment since the wings would not be providing a longitudinal moment on the aircraft."

With regard to claim 1, Applicants respectfully request clarification regarding the Examiner's rejection if it is to be maintained. Applicants note that elements 18 and 19 are side panels and rudder control surfaces, respectively, and elements 20 are control surfaces (elevons), of aft wing 14. However, these components are already included and recited in claim 1 as part of the aft wing, "wherein said aft wing has side panels and control surfaces", and thus they are not "additional" to the "arrangement" recited in claim 1.

Applicants respectfully submit that the terms "wing" and "tail" have a clearly defined meaning in the art. For example, and as clearly defined on page 5, lines 5-6 of the original specification, "Wing [is defined as]: Aircraft component providing lifting force (lift) to support the aircraft in the air. A wing is defined by airfoil sections along the wing span." Further, as is well known in the art "tail" refers to the structure at the aft end of the fuselage that provides stability to the aircraft and controls the flight dynamics of pitch and yaw.

The side panels 18 and rudder controls 19 provide lateral stability and control, but are not designed to provide lift and are not wings in the conventional meaning of this term. For example, as disclosed on page 9, lines 9-10, of the original specification, the panels 18 may be formed as symmetrical NACA airfoils, which produce no net force when aligned with the flow. Likewise, control surfaces 20 are in the form of elevons (for the aft wing 14), which is a well-known term in the art for control surfaces that combine the functions of an elevator (used for pitch control) and an aileron (used for roll control). Thus, a person having

ordinary skill in the art would in no way confuse the side panels 18, rudder 19 and elevons 20 for a "wing" or a "tail."

With regard to claim 10, Applicants respectfully submit that the phrase "positive pitching moment at zero lift" is a well known term in the art and refers to a situation where the wing is at an angle of attack in which there is no net lift, but there is nevertheless generated, on account of the airflow over the wing, a lift force by the upper surface of the wing that is equal but opposite in direction to the lift force generated by the lower surface of the wing. Furthermore, for example due to a camber of the wing, the lines of action of the two forces do not coincide and thus the two lift forces generate a nose-up pitching moment on the wing, since the lift vector of the lower surface is aft of the lift vector of the upper surface. Thus, "pitching moment at zero lift" never refers to a situation in which no lift at all is generated by the wing, i.e., when there is there is no airflow over the wing.

Similarly, "positive pitching moment at zero lift" as applied to an aircraft as a whole refers to a particular set of conditions in which no net lift is generated by the lifting surfaces of the aircraft, but nevertheless lift forces are generated which are equal and opposite in direction, and in which their lines of action are possibly not coincident, thereby providing a nose-up pitching moment. The term "positive pitching moment at zero lift" is a historical term used routinely in the art for convenience. For example this term can indicate a zero pitching moment at lift coefficients associated with cruise or loitering for stable aircraft configurations, while a "negative pitching moment at zero lift" for example can indicate a zero pitching moment at lift coefficients associated with cruise or loitering for unstable aircraft configurations.

In view of the discussion above, Applicants respectfully submit that claims 1 and 10 present terminology which clearly sets forth the subject matter, and as such particularly points out and distinctly claims the subject matter. Accordingly, Applicants submit that the rejection of claims 1 and 10 under 35 U.S.C. §112 is overcome. It is therefore respectively submitted that the rejection under 35 U.S.C. 112 should be withdrawn.

II. At pages 2-5 of the Official Action, claims 1-4, 6-22, 25 and 26 have been rejected under 35 USC § 103(a) as being unpatentable over U.S. Patent No. 2,147,968 to Delanne in view of U.S. Patent No. 6,626,398 to Cox et al.

The Examiner has rejected claims 1-4, 6-22, 25 and 26 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 2,147,968 to Delanne (hereinafter referred to as "Delanne") in view of U.S. Patent No. 6,626,398 to Cox et al. (hereinafter referred to as "Cox et al.").

Applicants respectfully traverse the rejection since all of the features of the presently claimed subject matter are not disclosed by the cited reference. To establish a *prima facie* case of obviousness, the Examiner must establish: (1) some suggestion or motivation to modify the references exists; (2) a reasonable expectation of success; and (3) the prior art references teach or suggest all of the claim limitations. *Amgen, Inc. v. Chugai Pharm. Co.*, 18 USPQ2d 1016, 1023 (Fed. Cir. 1991); *In re Fine,* 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); *In re Wilson*, 165 USPQ 494, 496 (CCPA 1970).

A *prima facie* case of obviousness must also include a showing of the reasons why it would be obvious to modify the references to produce the present invention. *See Dystar Textilfarben GMBH v, C. H. Patrick*, 464 F.3d 1356 (Fed. Cir. 2006). The Examiner bears the initial burden to provide some convincing line of reasoning as to why the artisan would

have found the claimed invention to have been obvious in light of the teachings. *Id.* at 1366.

Overview

Applicants hereby fully reference and incorporate the Remarks of the Response filed January 26, 2009, in their entirety, where applicable.

Mini and Micro UAV are special classes of aircraft. As disclosed in the Background section of the specification of the instant application, Mini-UAV are considered to include vehicles of about 20 cm to 1.2 m size, while Micro-UAV are limited to 6 inches (15 cm) in overall span and length according to the definition of the U.S. Defense Advanced Research Project Agency (DARPA).

Conventional design specifications for Micro-UAV produce a set of conflicting requirements. On the one hand, maximizing the allowable rectangular area of 15cm by 15cm by prior art designs provides low wing loading and increased Reynolds numbers, but on the other hand this results in wing shapes with low aspect ratio, reduced lift carrying capabilities and poor aerodynamic efficiency. Further, the control surfaces of conventional configurations have short moment arms and produce marginal stability and control characteristics, resulting in unsatisfactory flying qualities.

The aerodynamic design of such small aircraft as Mini and Micro UAV is not a matter of simply scaling down geometrically the design of larger aircraft. This is mainly due to the low Reynolds number (for example in the order of about $2*10^4$ to about $3*10^5$) in horizontal flight and the requirement of low speed for such Mini and Micro UAV, which is comparable with moderate wing speeds of perhaps about 10 to about 20 m/s.

Thus, for example, if a wing that is designed for large aircraft for a particular Reynolds number is scaled down to 0.25 of its original linear dimensions, the airflow velocity over the scaled down wing has to be ***increased*** by a factor of 4 (= 1/0.25) to obtain similar flow behavior (and similar Reynolds number) as in the original non-scaled wing, so that if the speed is maintained constant, there is inevitably a reduction in Reynolds number for the scaled wing. At the same time, scaling down the linear dimensions by a factor of 4 results in a reduction in wing area of 16 and a reduction in volume (and thus weight) of 64, which leads to lower wing loading and reduction of flight airspeed, and the reduction in airspeed further reduces the Reynolds number of the scaled wing relative to the original wing. Airspeed cannot be increased for the scaled wing as this will require flight at much lower lift coefficients relative to the un-scaled wing, resulting in significant degradation of aerodynamic efficiency.

Thus, scaling down wing dimensions and reducing the airflow velocity results in much lower Reynolds numbers, and thus airflow conditions, with respect to the original wing. In the case of the aforementioned Mini and Micro UAV, their linear dimensions ***and the flight speeds*** are ***both*** considerably reduced with respect to larger conventional aircraft including conventional UAV, and thus the operating range of Reynolds number is *much less* than for the larger vehicles.

It is also a well-known phenomenon that lift and drag characteristics deteriorate rapidly as Reynolds number is decreased, so that an acceptable performance in a particular aircraft design generally translates to unacceptable performance when the design is scaled down linearly and the design speed of the scaled design is also reduced to a fraction of the design speed of the original design.

Thus, it is respectfully submitted that a person having ordinary skill in the art would recognize that configurations for aircraft, including UAV, larger than the aforesaid Mini and Micro UAV do not ordinarily apply thereto. It is further respectfully submitted that the references cited do not explicitly disclose or suggest such Mini and Micro UAV, and therefore are not relevant prior art. This will be further elaborated below.

Rejection of claims 1-4, 6-22, 25 and 26

Independent claim 1 recites [a]n aircraft arrangement of self-propelled Mini or Micro UAV comprising

> a fore wing and an aft wing in tandem close-coupled arrangement, wherein said aft wing has side panels and control surfaces, and tapered planform with positive sweep, said fore wing has non-positive trailing edge sweep, the fore wing and aft wing being disposed at different heights, and said arrangement being free of additional wings or tail arrangement.

These features are not described nor rendered obvious by Delanne or Cox et al., whether alone or in combination. Claims 2-29 depend directly or indirectly from claim 1.

Delanne "has for its subject an airplane or hydroplane presenting in comparison with known aircraft a considerable improvement in the qualities of minimum gliding ratio and buoyancy and enabling a more advantageous utilization of the fuselage, a more extended visibility and greater security." *See* Delanne page 1, left col., lines 1-7.

Cox et al. "provides an unmanned airborne reconnaissance vehicle having a fuselage, a forward wing pair and a rearward wing pair vertically separated by a gap and staggered fore and aft therebetween such that a general biplane configuration is formed. The present invention provides a pair of wing tip plates for joining the wing tips of the

forward and rearward wings. The unmanned airborne reconnaissance vehicle of the present invention includes a power plant to propel the vehicle through the air and a generally T-shaped tail having a vertical stabilizer including a rudder and a full span elevator." *See* Cox et al. Abstract.

1. Improper assertion/lack of motivation to combine

Firstly, Applicants respectfully submit that Delanne was filed in 1935, many decades before the concept of Mini and Micro UAV were discussed and defined. Further, Delanne relates to a full scale aircraft and thus a person having ordinary skill in the art would not be motivated to consider the configurations disclosed there when wishing to improve on Mini and Micro UAV. In fact, the Examiner has agreed on page 3 of the Office Action that Delanne refers only to large manned aircraft, and has applied Cox et al. in an attempt to cure this deficiency of Delanne. Specifically, the Examiner admits that Delanne "does not disclose the aircraft arrangement as being a micro or mini UAV," and asserts that Cox et al. "teaches an arrangement which comprises a tandem close-coupled arrangement and is a mini or micro UAV (See Table 1)."

The Examiner has further asserted that "it would have been obvious... to down size and make autonomous the aircraft arrangement of Delanne in view of the teachings of Cox et al. The motivation for doing so would have been to create an aircraft which can be handled in the battlefield (sizing of Cox et al.) yet has high load carrying capabilities and maneuverability (arrangement of Delanne)." However, this asserted motivation refers to **starting with Cox et al**., and then turning to Delanne. Thus, Applicants respectfully submit that the Examiner has failed to provide a motivation to consider Cox et al., **starting with**

Delanne, which (Delanne) has otherwise been presented as the basis of the 35 U.S.C. §103 rejection.

In any case, it is respectfully submitted that, notwithstanding the Examiner's stated position, there is no motivation whatsoever to combine Delanne and Cox et al., and that a person having ordinary skill in the art starting with Delanne would never consider Cox et al., or, conversely, starting with Cox et al. would never consider Delanne.

2. Delanne and Cox et al. teach away from the claimed subject matter

Applicants respectfully submit that a person having ordinary skill in the art would recognize Delanne as describing a radical departure from conventional aircraft design; Delanne is based largely on the premise of eliminating the vertical and horizontal fins of an aircraft. *See* for example Delanne page 1, left col., lines 8-10; page 1, right col., lines 7-13 and lines 39-44. Delanne further lists numerous advantages that (ostensibly) may be obtained when, instead of the conventional fins of a tail plane, the plane design includes the enlarged Delanne "rear wing." *See* almost the entire page 1 and page 2, left col.

Under such circumstances it is clear that Delanne ***teaches away*** from conventional aircraft designs, and in particular from ***any*** aircraft design that features a tail plane. Thus, a person having ordinary skill in the art attempting to articulate a combination/rejection starting with Delanne would not be motivated to consider Cox et al., which not only teaches the conventional T-type tail design or conventional tail (*see* at least Cox et al. Abstract; col. 3, lines 41-43; and col. 2, lines 24-28), but in further contrast to the above discussed Delanne premise, suggests providing ***even more*** (additional) fins (*see* at least Cox et al. col. 3, lines 50-52; Fig. 1l and Fig. 3, item 124).

Conversely, if one were to base a combination/rejection on Cox et al., Cox et al. is specifically concerned with providing a UAV that is significantly smaller than a manned aircraft (*see* for example Cox et al. col. 1, line 11; and col. 1, lines 37-47), specifically incorporates a tail (again, *see* Cox et al. Abstract; col. 3, lines 41-43; and col. 2, lines 24-28), and furthermore suggests providing more/additional fins (*see* Cox et al. col. 3, lines 50-52; Fig. 3, item 124; Fig. 1). Additionally, the Cox et al. emphasizes providing the staggered wing design in order to reduce the overall size of the UAV as compared to the larger wings that would otherwise be required (*see* Cox et al. col. 1, lines 39-40; and col. 2, lines 10-23), and removing a tail from such a design would result in major instability of the resulting UAV unless drastic corrective action were to be implemented (which is not suggested or disclosed), including a redesign of the UAV (which Cox et al.'s emphasis, design, etc. inherently teaches away from). Thus, Cox et al. teaches away from ***any large*** aircraft design, and also from ***any*** aircraft designs that do not have a tail or fins, and therefore a person having ordinary skill in the art would not be motivated to consider Delanne, which in contrast is directed to a large manned aircraft having no tail.

Furthermore, Cox et al. aims to provide an "exceptional airspeed envelope" and desirable aerodynamic capabilities. *See* Cox et al. col. 1, line 45 and col. 1, lines 58 to 64, respectively. Notwithstanding that discussed in Delanne, there are several reasons why a person having ordinary skill in the art would not seriously consider Delanne as a serious aircraft design, particularly for providing desirable aerodynamic capabilities. For example, Delanne shows a high fineness ratio of fuselage (ratio of maximum diameter to fuselage length, see Fig. 3 of Delanne), which will be considered by a person having ordinary skill in the art to contribute excessively to parasite drag, which will in turn produce a deterioration

of aerodynamic efficiency, reduction of maximum speed and an increase in the power requirements for the aircraft. Similarly, the large wetted area of the rear wing of Delanne and its increased parasite drag will contribute further to a degradation of all the important aerodynamic characteristic of the aircraft. Thus, any weight reduction resulting from the Delanne short fuselage configuration will also be ineffective from a performance point of view because of the penalties that are associated with a significant rise of parasite drag. Indeed, Delanne (conceptually) is in striking contrast to the mainstream of aircraft development in Britain and Germany in mid 1930's that was instead directed to the design of slender fuselages with relatively small empennages having large arm of control surfaces.

3. Improper Hindsight

Applicants also respectfully note that of all the features and elements disclosed in Cox et al., *only the size and unmanned nature of the aircraft* were chosen by the Examiner to be combined to replace the size and manned nature of the aircraft disclosed by Delanne. It is respectfully submitted that the asserted motivation benefits directly from improper hindsight in view of the claimed subject matter.

4. Not all elements taught or shown

Applicants respectfully submit that neither Delanne nor Cox et al., whether taken alone or in combination teach, suggest or describe "[a]n aircraft arrangement of *self-propelled Mini or Micro UAV* comprising a fore wing and an aft wing in tandem close-coupled arrangement, wherein said aft wing has side panels and control surfaces, and tapered planform with positive sweep, said fore wing has non-positive trailing edge sweep,

the fore and aft wing being disposed at different height, and said arrangement being free of additional wings or tail arrangement," (emphases added) as recited in claim 1.

Cox et al. has been applied by the Examiner to cure the acknowledged deficiency of Delanne, as much as Delanne "does not disclose the aircraft arrangement as being a micro or mini UAV." However, Cox et al. does not cure this deficiency and in fact also does not disclose a "micro or mini UAV."

As already discussed above, Mini and Micro UAV are special classes of aircraft, and Mini-UAV are considered to include vehicles of about 20 cm to 1.2 m size, while Micro-UAV are limited to 6 inches (15 cm) in overall span and length according to the definition of DARPA. In contrast, the size of the UAV described by Cox et al. is much larger than the size defined by DARPA, and thus does not enable the Cox et al. UAV to be classified as a Mini-UAV, much less a Micro-UAV. For example, referring to Examiner cited Table 1 of Cox et al. and to Cox et al. col. 4, lines 33-35, Cox et al. describes a wing span of about 2.13 meters (84 inches) and a fuselage length of about 2 meters (80 inches); these values show that the Cox et al. UAV is at least almost twice the linear dimension *upper limit* of Mini-UAV and therefore much, much larger than Micro-UAV.

Further, with respect to the asserted combination, Applicants respectfully submit that "down siz[ing]' the Cox UAV aircraft is also not a simple matter. For example, and as outlined above, if the UAV wings of Cox et al. (which a person having ordinary skill in the art would consider as having been designed for a particular Reynolds number) are scaled down to 0.5 of its original linear dimensions to enable the Cox et al. UAV to be classified as a *Mini*-UAV, the flow velocity over the corresponding scaled-down wing has to be ***increased*** by a factor of 2 (= 1/0.5) to obtain similar flow behavior (and a similar Reynolds

number) relative to the original non-scaled wing. If the flow velocity is to be maintained (constant), there is inevitably a reduction in the Reynolds number for the scaled-down wing. At the same time, scaling down the linear dimensions by a factor of 2 results in a reduction in wing area of 4 and a reduction in volume (and thus weight) of 8, which in turn lead to lower wing loading and reduction of flight airspeed; the reduction in airspeed further reduces the Reynolds number of the scaled-down wing relative to the original (non-scaled) wing. Accordingly, airspeed cannot be increased for the scaled-down wing as this will require flight at much lower lift coefficients relative to the non-scaled wing, resulting in significant degradation of aerodynamic efficiency. Notably, these adverse effects are contrary to the aims and expectations of Cox et al.

It is to be expected then, that the effect of scaling the Cox et al. UAV down further to *Micro*-UAV dimensions is even more drastic, as a Micro-UAV is small enough to fit within the fuselage, or even within the spacing provided by the stagger G between the wings of the non-scaled Cox et al. UAV. Accordingly, Applicants respectfully submit that neither Delanne nor Cox et al. teach, show or suggest "[a]n aircraft arrangement of self-propelled Mini or Micro UAV" as presently claimed.

Thus, it is respectfully submitted that claim 1 is novel, unobvious and consequently patentable over the cited references. For at least these reasons, all claims dependent from claim 1, including dependent claims 2-4, 6-22, 25 and 26 are also novel, unobvious and consequently patentable over the cited prior art by virtue of their direct or indirect dependency from claim 1. No *prima facie* rejection under 35 U.S.C. 103(a) can be made against these claims and Applicants request an indication of such.

Notwithstanding the above, it is respectfully submitted that the dependent claims also have features which are novel, unobvious and patentable *per se*. In view of the foregoing, reconsideration and withdrawal of the above rejection is respectfully requested.

III. At page 5 of the Official Action, claims 5, 23, 24 and 27-29 have been rejected under 35 USC § 103(a) as being unpatentable over U.S. Patent No. 2,147,968 to Delanne and U.S. Patent No. 6,626,398 to Cox et al. as applied to claims 1 and 4 above, and further in view of U.S. Patent No. 3,954,231 to Fraser.

The Examiner has rejected claims 5, 23, 24 and 27-29 under 35 U.S.C. §103(a) as being unpatentable over Delanne in view of Cox et al. as applied to claims 1 and 4 above, and further in view of U.S. Patent No. 3,954,231 to Fraser (hereinafter referred to as "Fraser").

A brief outline of the relevant authority is set forth above in Section II. As discussed above, claim 1 has been canceled without prejudice or disclaimer, accordingly the rejection thereto is moot. It is submitted that, with respect to the pending claims, a proper case of *prima facie* obviousness has not been established because, whether taken alone or together, none of the cited references teach or suggest all the limitations of the claims as required by *In re Wilson*. In view of the following, Applicants respectfully traverse this rejection.

Claims 5, 23, 24 and 27-29 depend directly or indirectly from claim 1, discussed above. Independent claim 1 recites [a]n aircraft arrangement of self-propelled Mini or Micro UAV comprising

> a fore wing and an aft wing in tandem close-coupled arrangement, wherein said aft wing has side panels and control surfaces, and tapered

planform with positive sweep, said fore wing has non-positive trailing edge sweep, the fore wing and aft wing being disposed at different heights, and said arrangement being free of additional wings or tail arrangement.

Applicants refer to the discussion in Section II regarding amended independent claim 1 and patentable features therein not described by Delanne and Cox et al. Applicants respectfully submit that claims 5, 23, 24 and 27-29 are novel, unobvious and consequently patentable over Delanne and Cox et al., whether taken separately or in combination, *inter alia*, at least due to their dependency from patentable claim 1 reciting "[a]n aircraft arrangement of *self-propelled Mini or Micro UAV*," (emphases added) for the reasons discussed in detail above with reference to claim 1, which discussions are incorporated herein in their entirety.

Fraser "relates to the arrangement of lifting, stabilizing, and flight controlling, wing surfaces, placed near the front of an aircraft, with main lifting wing surfaces, placed toward the rear. Control surfaces placed rearwardly on the aft fuselage and/or the rear main lifting wing surfaces, are also indicated." *See* Fraser Abstract.

However, Fraser also does not remedy the deficiencies of Delanne and Cox et al. Fraser also fails to teach or suggest, *inter alia*, "[a]n aircraft arrangement of *self-propelled Mini or Micro UAV*," (emphases added) as recited in the present claims. Applicants respectfully note that the Examiner has applied Fraser "to provide the aircraft arrangement of Delanne and Cox et al. as described above with the pylon, wing twist, and stability characteristics of Fraser" and <u>not</u> to address the deficient size or control of the asserted combined UAV.

In view of the foregoing, Applicants respectfully submit that nothing in the cited art

references (Delanne, Cox et al. or Fraser) renders the presently claimed subject matter obvious within the meaning of 35 U.S.C. §103(a). Therefore, Applicants respectfully submit that claim 1 is non-obvious, novel and patentable over the cited references. Similarly, claims 2-29 (including claims 5, 23, 24 and 27-29) are non-obvious, novel and patentable at least due to their dependency from claim 1, as well as for additional features recited therein. Accordingly, the Examiner is respectfully requested to withdraw these rejections.

IV. New claims 30 and 31

Applicants further respectfully submit that with respect to the cited prior art of record, for at least the reasons discussed above, *mutatis mutandis*, newly presented claim 30 is also respectfully submitted to be novel, unobvious and consequently patentable over the cited references. It is submitted that claim 30 has further features which are also *per se* novel and inventive over the cited art.

Newly presented claim 30 recites "[a]n *aircraft arrangement of self-propelled Mini or Micro UAV comprising*

> a fore wing and an aft wing in tandem close-coupled arrangement, wherein said aft wing has side panels and control surfaces, and tapered planform with positive sweep, said fore wing has non-positive trailing edge sweep, the fore wing and aft wing being disposed at different heights, and said arrangement being free of additional wings or tail arrangement, and wherein a planform area of the aft wing is not less than a planform area of the fore wing.

Thus, the plan area of the aft wing is equal to or greater than the plan area of the fore wing. In contrast, Delanne does not disclose nor suggest such an arrangement. In Delanne the front wing is larger than the rear wing. *See* Delanne Fig. 2. The Examiner has asserted (with respect to claim 15 reciting, *inter alia*, "wherein planform areas of the aft

wing and the fore wing are in ratio between 2:1 and 1:1") that Fig. 6 of Delanne shows such an arrangement. However, Applicants respectfully disagree and submit that Delanne Fig. 6 shows front wing 1 truncated at the engine nacelle for illustration of the aerofoil cross section (shown in hatched lines) and is not a feature of the embodiment of Delanne Fig 6. This may be readily understood from the appearance of port wing in Delanne Fig. 6 that extends beyond its respective nacelle. Furthermore, Delanne Figs. 4 and 5 show the same embodiment as Fig. 6 (*see* Delanne page 2, right col., lines 73-74), and clearly show that the chord and span of the front wing 1 are both larger than for the rear wing 2, and thus, in contrast to claim 30, that the Delanne front wing has a larger plan area than the rear wing.

It is also to be noted that in Delanne, the front wing remains as the main wing of the aircraft and is thus larger than the (albeit enlarged) rear wing.

Furthermore, modifying Cox et al. in view of Delanne would result in the tail plane of Cox et al. being replaced with an enlarged Delanne "rear wing," and still maintain the Cox et al. staggered wing design as the forward wing (pair). Thus, in such a combination, the forward (staggered) wing (pair) would still be larger than the rear (enlarged) wing.

Thus, it is respectfully submitted that claim 30 is novel, unobvious and consequently patentable over the cited references. For at least the reasons discussed above with respect to claim 30, dependent claim 31 is also novel, unobvious and consequently patentable over the cited prior art by virtue of its direct dependency from claim 30. Notwithstanding the above, it is respectfully submitted that the dependent claims also have features which are novel, unobvious and patentable *per se*.

CONCLUSION

Applicants assert that the claims are in condition for immediate allowance and early notice to that effect is earnestly solicited. Should the Examiner deem that any further action by Applicants' undersigned representative is desirable and/or necessary, the Examiner is invited to telephone the undersigned at the number set forth below.

In the event this paper is not timely filed, Applicants hereby petition for an appropriate extension of time. Please charge any fee deficiency or credit any overpayment to Deposit Account No. 14-0112.

Respectfully submitted,

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